ARE OBESITY AND OVERWEIGHT CLUSTERED? SPATIAL EXAMINATION OF OLDER WOMEN IN THREE STATES

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Background and Aims: Spatial analyses have been applied to examine relationships between the built environment and obesity. However, few studies have examined this relationship from the aspect of spatial clustering. The purpose of this study was to identify spatial clustering of obesity and overweight/obesity in relation to demographics and the built environment.
Methods: Data for 23,449 Nurses' Health Study participants (mean age = 70.3 ± 6.9 years) in California, Massachusetts, and Pennsylvania were used in this analysis. Binary outcomes were created for obesity (BMI≥30.0) and overweight/obesity (BMI≥25.0). Built environment variables were created for population density, intersection density, and densities of facilities (e.g., restaurants, physical activity facilities). A spatial scan statistic was used to test for spatial clustering (i.e., areas with high or low risk at county level) of obesity and overweight/obesity in unadjusted models and models adjusted for demographic (e.g., age, education) and built environment variables.
Results: Statistically significant ($p<0.05$) spatial clusters of high and low risk of obesity and overweight/obesity were identified in California and Pennsylvania. Of the two high-risk clusters identified in California, participants had a 34-36% greater risk of overweight/obesity, and in the other a 16-17% greater risk. Of the high-risk clusters in Pennsylvania, participants had a 14-16% greater risk of obesity. Of the one low-risk cluster in California, participants had a 25% lower risk of overweight/obesity. Of the two low-risk clusters in Pennsylvania, participants had a 19-20% lower risk of obesity and in the other, a 12% lower risk of overweight/obesity. Adjusting for demographic and built environment variables did not alter the locations of clusters.
Conclusions: Preliminary findings suggest that obesity and overweight/obesity outcomes were spatially clustered and that clusters were not explained by the covariates examined. However, further investigation of neighborhood socioeconomic and built environment variables that might account for clustering needs to be conducted.
References:

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